Claims

What is claimed is:

1. A system for supporting performer interactions with a self-organizing chemical reaction, said system comprising:

a chemical reaction vessel;

a self-organizing chemical reaction contained within said chemical reaction vessel, said self-organizing chemical reaction initially comprising at least two constituent chemical reactants;

a monitor element for monitoring said self-organizing chemical reaction, said monitor element producing observation signals associated with said self-organizing chemical reaction;

at least one controller element for controlling chemical reactions of said self-organizing chemical reaction, wherein said at least one controller element is responsive to a reaction control signal; and

a processing element for converting at least one incoming performance signal into said reaction control signal, said converting accomplished using one of a selectable plurality of control-conversion algorithms, wherein said at least one incoming performance signal responsively controls chemical variations of said self-organizing chemical reaction.

2. The system according to claim 1, wherein said at least one controller element comprises an electrode.

3. The system according to claim 1, wherein said at least one controller element comprises an intake element for introducing new reactants to said chemical reaction vessel.

4. The system according to claim 1, wherein said at least one controller element comprises an outtake element for extracting existing reactants from said chemical reaction vessel.

5. The system according to claim 1, wherein the relative concentrations of chemicals contained within said chemical reaction vessel are varied through reactant refreshing, wherein said reactant refreshing is controlled by said at least one incoming performance signal.

6. The system according to claim 1, wherein said at least one incoming performance signal comprises signals of MIDI format.

7. The system according to claim 1, said system further comprising:

a plurality of monitor elements for monitoring said self-organizing chemical reaction, wherein each monitoring element of said plurality of monitoring elements generate an observation signal associated with said self-organizing chemical reaction.

8. The system according to claim 1, wherein said monitor element comprises an electrode.

9. The system according to claim 1, wherein said monitor element comprises a chemical sensor.

10. The system according to claim 1, wherein said monitor element comprises a video camera.

11. The system according to claim 1, wherein said observation signals are converted into an outgoing signal of MIDI format.

12. The system according to claim 11, wherein said conversion of said observation signals to said outgoing signal of MIDI format is performed by a processor according to an observation-conversion algorithm.

13. The system according to claim 12, wherein said observation-conversion algorithm is selected from a plurality of pre-programmed observation-conversion algorithms.

14. The system according to claim 13, wherein an incoming control signal of MIDI format is used to select a particular observation-conversion algorithm from said plurality of pre-programmed observation-conversion algorithm.

15. The system according to claim 12, wherein an incoming control signal of MIDI format is used by said observation-conversion algorithm to generate said self-organizing chemical reaction.

16. The system according to claim 1, wherein said control-conversion algorithm is selected from a plurality of pre-programmed control-conversion algorithms.

17. The system according to claim 16, wherein an incoming control signal of MIDI format is used to select a particular control-conversion algorithm from said plurality of pre-programmed control-conversion algorithms.

18. The system according to claim 16, wherein an incoming control signal of MIDI format is used by said observation-conversion algorithm to generate said self-organizing chemical reaction.

19. The system according to claim 11, wherein said conversion of said observation signals to said outgoing signal of MIDI format is performed by said processing element according to an observation-conversion algorithm.

20. The system according to claim 1, wherein a visual indicator compound is introduced into said self-organizing chemical reaction to visually enhance said self-organizing chemical reaction.

21. The system according to claim 1, wherein said chemical reaction vessel comprises a substantially flat dish.

22. The system according to claim 1, wherein said monitor element comprises a two-dimensional array of monitor elements.

23. The system according to claim 1, wherein said monitor element comprises a two-dimensional array of component control elements.

24. The system according to claim 1, wherein said monitor element comprises a three-dimensional array of component monitor elements.

25. The system according to claim 1, wherein said monitor element comprises a three-dimensional array of component control elements.

26. The system according to claim 1, wherein said monitor element comprises a video camera for producing said observation signals, wherein said observation signals are converted by a processor into an outgoing signal, wherein said conversion of said observation signal to said outgoing signal is performed by said processor according to an observation-conversion algorithm performing at least one real-time image processing operation.

27. The system according to claim 26, wherein said at least one real-time image processing operation comprises position threshold detection.

28. The system according to claim 26, wherein said at least one real-time image processing operation comprises edge detection.

29. The system according to claim 26, wherein said at least one real-time image processing operation comprises edge detection location.

30. The system according to claim 26, wherein said at least one real-time image processing operation comprises pattern recognition.

31. The system according to claim 26, wherein said at least one real-time image processing operation comprises pattern area measurement.

32. The system according to claim 26, wherein said at least one real-time image processing operation comprises pattern rate-of-change measurement.

33. The system according to claim 26, wherein said observation signals comprise video signals communicated to a video display.

34. The system according to claim 33, wherein said video display is a component of a video projection system.

35. The system according to claim 26, wherein said observation signals comprise video signals provided to a real-time video processor to produce a processed video signal, said processed video signal provided to a video display.

36. The system according to claim 1, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external audio synthesizer system, and wherein

said outgoing signal of MIDI format is adapted to control said external audio synthesizer system.

37. The system according to claim 1, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external signal processing system, and wherein

said outgoing signal of MIDI format is adapted to control said external signal processing system.

38. The system according to claim 1, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external lighting system, and wherein

said outgoing signal of MIDI format is adapted to control said external lighting system.

39. The system according to claim 1, wherein said observations signals are converted into an outgoing video signal.

40. The system according to claim 39, wherein said outgoing video signal comprises recorded video.

41. The system according to claim 39, wherein said outgoing video signal comprises rendered graphics.

42. A method for supporting performer interactions with a self-organizing chemical reaction, said method comprising:

initiating a self-organizing chemical reaction within a chemical reaction vessel, said self-organizing chemical reaction initially comprising at least two constituent chemical reactants;

monitoring said self-organizing chemical reaction using a monitor element, said monitor element producing observation signals associated with said self-organizing chemical reaction;

controlling chemical reactions of said self-organizing chemical reaction using at least one controller element, wherein said at least one controller element is responsive to a reaction control signal; and

converting at least one incoming performance signal into said reaction control signal using a processing element, said converting accomplished using one of a selectable plurality of control-conversion algorithms, wherein said at least one incoming performance signal responsively controls chemical variations of said self-organizing chemical reaction.

43. The method according to claim 42, wherein said at least one controller element comprises an electrode.

44. The method according to claim 42, wherein said at least one controller element comprises an intake element for introducing new reactants to said chemical reaction vessel.

45. The method according to claim 42, wherein said at least one controller element comprises an outtake element for extracting existing reactants from said chemical reaction vessel.

46. The method according to claim 42, wherein the relative concentrations of chemicals contained within said chemical reaction vessel are varied through reactant refreshing, wherein said reactant refreshing is controlled by said at least one incoming performance signal.

47. The method according to claim 42, wherein said at least one incoming performance signal comprises signals of MIDI format.

48. The method according to claim 42, said method further comprising:

monitoring said self-organizing chemical reaction using a plurality of monitor elements, wherein each monitoring element of said plurality of monitoring elements generate an observation signal associated with said self-organizing chemical reaction.

49. The method according to claim 42, wherein said monitor element comprises an electrode.

50. The method according to claim 42, wherein said monitor element comprises a chemical sensor.

51. The method according to claim 42, wherein said monitor element comprises a video camera.

52. The method according to claim 42, wherein said observation signals are converted into an outgoing signal of MIDI format.

53. The method according to claim 52, wherein said conversion of said observation signals to said outgoing signal of MIDI format is performed by a processor according to an observation-conversion algorithm.

54. The method according to claim 52, wherein said observation-conversion algorithm is selected from a plurality of pre-programmed observation-conversion algorithms.

55. The method according to claim 54, wherein an incoming control signal of MIDI format is used to select a particular observation-conversion algorithm from said plurality of pre-programmed observation-conversion algorithm.

56. The method according to claim 53, wherein an incoming control signal of MIDI format is used by said observation-conversion algorithm to generate said self-organizing chemical reaction.

57. The method according to claim 42, wherein said control-conversion algorithm is selected from a plurality of pre-programmed control-conversion algorithms.

58. The method according to claim 57, wherein an incoming control signal of MIDI format is used to select a particular control-conversion algorithm from said plurality of pre-programmed control-conversion algorithms.

59. The method according to claim 57, wherein an incoming control signal of MIDI format is used by said observation-conversion algorithm to generate said self-organizing chemical reaction.

60. The method according to claim 57, wherein said conversion of said observation signals to said outgoing signal of MIDI format is performed by said processing element according to an observation-conversion algorithm.

61. The method according to claim 42, wherein a visual indicator compound is introduced into said self-organizing chemical reaction to visually enhance said self-organizing chemical reaction.

62. The method according to claim 42, wherein said chemical reaction vessel comprises a substantially flat dish.

63. The method according to claim 42, wherein said monitor element comprises a two-dimensional array of monitor elements.

64. The method according to claim 42, wherein said monitor element comprises a two-dimensional array of component control elements.

65. The method according to claim 42, wherein said monitor element comprises a three-dimensional array of component monitor elements.

66. The method according to claim 42, wherein said monitor element comprises a three-dimensional array of component control elements.

67. The method according to claim 42, wherein said monitor element comprises a video camera for producing said observation signals, wherein said observation signals are converted by a processor into an outgoing signal, wherein said conversion of said observation signal to said outgoing signal is performed by said processor according to an observation-conversion algorithm performing at least one real-time image processing operation.

68. The method according to claim 67, wherein said at least one real-time image processing operation comprises position threshold detection.

69. The method according to claim 67, wherein said at least one real-time image processing operation comprises edge detection.

70. The method according to claim 67, wherein said at least one real-time image processing operation comprises edge detection location.

71. The method according to claim 67, wherein said at least one real-time image processing operation comprises pattern recognition.

72. The method according to claim 67, wherein said at least one real-time image processing operation comprises pattern area measurement.

73. The method according to claim 67, wherein said at least one real-time image processing operation comprises pattern rate-of-change measurement.

74. The method according to claim 67, wherein said observation signals comprise video signals communicated to a video display.

75. The method according to claim 74, wherein said video display is a component of a video projection system.

76. The method according to claim 67, wherein said observation signals comprise video signals provided to a real-time video processor to produce a processed video signal, said processed video signal provided to a video display.

77. The method according to claim 42, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external audio synthesizer system, and wherein

said outgoing signal of MIDI format is adapted to control said external audio synthesizer system.

78. The method according to claim 42, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external signal processing system, and wherein

said outgoing signal of MIDI format is adapted to control said external signal processing system.

79. The method according to claim 42, wherein said observations signals are converted into an outgoing signal of MIDI format, wherein

said outgoing signal of MIDI format is communicated to an external lighting system, and wherein

said outgoing signal of MIDI format is adapted to control said external lighting system.

80. The method according to claim 42, wherein said observations signals are converted into an outgoing video signal.

81. The method according to claim 80, wherein said outgoing video signal comprises recorded video.

82. The method according to claim 80, wherein said outgoing video signal comprises rendered graphics.

83. A method for supporting performer interactions with a self-organizing chemical reaction, said method comprising:

initiating a self-organizing chemical reaction comprising at least two constituent chemical reactants;

monitoring said self-organizing chemical reaction using a monitor element, said monitor element producing observation signals associated with said self-organizing chemical reaction;

responsively controlling chemical reactions of said self-organizing chemical reaction using a reaction control signal; and

converting at least one incoming performance signal into said reaction control signal, said converting accomplished using one of a selectable plurality of control-conversion algorithms, wherein said at least one incoming performance signal responsively controls chemical variations of said self-organizing chemical reaction.